

Cleanup Alternatives

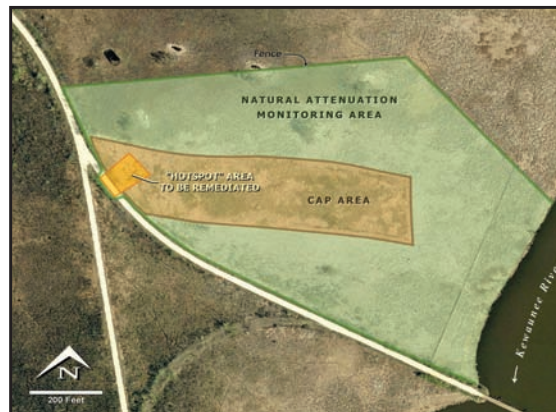


Field trials test plots.

Treatability studies were conducted to evaluate several alternative ways to clean up the site. The treatability studies looked at approaches for remediating both the highly contaminated sediments near the original spill under and next to the rail bed, and less-contaminated areas in the rest of the marsh. A site-specific remedy was developed for the highly contaminated sediment, allowing it to be left in place after treatment. Field tests were conducted on one of the alternative methods for treating the moderately contaminated sediment. However, further studies indicated that the sediment will naturally clean up over time and a more widespread remedy may not be necessary.

Where do we go from here?

The areas of highest arsenic contamination will be remediated by mixing and treating the sediment and water with additives. The process was developed during the treatability studies to make the arsenic stable and immobile and to further prevent arsenic migration away from the railroad bed. After treatment, the immobilized material will remain in the marsh and will be covered with a vegetative cap. The remediation is planned for the fall of 2011. The less contaminated area will be monitored to ensure that natural attenuation continues until the arsenic has been reduced to background levels.



Map of remediation areas.

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C. D. "Buzz" Besadny Fish & Wildlife Area

Kewaunee Marsh Cleanup Project

Responding to an Historic Arsenic Spill



PUB-RR-910

July 2011

dnr.wi.gov/org/aw/rr

History

In the early 1990s the Wisconsin Department of Natural Resources (WDNR) was notified by a hunter that an area within the C.D. "Buzz" Besadny Fish & Wildlife Area contained stressed and dead vegetation (see photo below). Agency staff collected soil and water samples from the area and found high concentrations of arsenic in and around the stressed area.



Stressed vegetation in the marsh, 1993.

Where did the arsenic come from?

The impacted area is adjacent to and below a former railroad track once owned and operated by the Green Bay and Western Railroad. Investigation by both the WDNR and the Railroad suggest that the high arsenic concentrations may have been the result of a railroad spill or release of calcium arsenate during a train derailment sometime around the 1940s. Arsenic was commonly used as a pesticide during that time period.



An aerial view of the site.

Immediate Response

The WDNR and the Railroad have worked together since 1996 to determine the extent of the problem and to develop remedial actions. Initially, a fence was installed to limit public access, and a cap was placed over the most contaminated sediment to limit arsenic exposure to wildlife in the area. After the immediate threat was removed, investigations were conducted to determine the extent of arsenic contamination, its impact on the environment, and evaluate alternatives for cleaning up the site.



Crews install a cap over contamination at the site.

Soil, Water & Ecological Evaluation

The WDNR has determined the extent of arsenic contamination in both the sediment and water at the site. Studies have shown that the arsenic in the C.D. "Buzz" Besadny Fish & Wildlife Area is not a drinking water concern, and – after the cap installation – there has been minimal impact on wildlife in the area. High levels of arsenic were found under the rail bed and in sediments within the fenced area near the trail, with moderately contaminated sediment in the rest of the impacted area. Arsenic levels in the moderately contaminated sediment are decreasing about 6% per year due to natural loss of the arsenic over time.



Soil samples are tested in the marsh.